

Name: \_\_\_\_\_

**Worksheet – Simplifying Non-Variable Radical Expressions Containing Square Roots**

Directions: Please simplify the following. Express your answers with exact numbers.

1.  $\sqrt{8}$   
 $\sqrt{4 \cdot 2}$  or  $\sqrt{2 \cdot 2 \cdot 2}$   
 $2\sqrt{2}$
2.  $\sqrt{32}$   
 $\sqrt{16 \cdot 2}$  or  $\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$   
 $4\sqrt{2}$
3.  $\sqrt{75}$   
 $\sqrt{25 \cdot 3}$  or  $\sqrt{3 \cdot 5 \cdot 5}$   
 $5\sqrt{3}$
4.  $\sqrt{72}$   
 $\sqrt{36 \cdot 2}$  or  $\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3}$   
 $6\sqrt{2}$
5.  $8\sqrt{12}$   
 $8\sqrt{4 \cdot 3}$  or  $8 \cdot 2\sqrt{3}$   
 $16\sqrt{3}$
6.  $-\sqrt{20}$   
 $-\sqrt{4 \cdot 5}$  or  $-2\sqrt{5}$
7.  $\frac{1}{2}\sqrt{80}$   
 $\frac{1}{2}\sqrt{16 \cdot 5}$  or  $\frac{1}{2} \cdot 4\sqrt{5}$   
 $2\sqrt{5}$
8.  $-3\sqrt{54}$   
 $-3\sqrt{9 \cdot 6}$  or  $-3 \cdot 3\sqrt{6}$   
 $-9\sqrt{6}$
9.  $\sqrt{288}$   
 $\sqrt{144 \cdot 2}$  or  $2 \cdot 2 \cdot 3\sqrt{2}$   
 $12\sqrt{2}$
10.  $-\sqrt{99}$   
 $-\sqrt{9 \cdot 11}$  or  $-3\sqrt{11}$
11.  $\sqrt{88}$   
 $\sqrt{4 \cdot 22}$  or  $2\sqrt{2 \cdot 11}$   
 $2\sqrt{22}$
12.  $\sqrt{34}$
13.  $7\sqrt{108}$   
 $7\sqrt{36 \cdot 3}$  or  $7 \cdot 6\sqrt{3}$   
 $42\sqrt{3}$
14.  $\sqrt{58}$
15.  $\sqrt{220}$   
 $\sqrt{4 \cdot 55}$  or  $2\sqrt{5 \cdot 11}$   
 $2\sqrt{55}$
16.  $-4\sqrt{180}$   
 $-4\sqrt{36 \cdot 5}$  or  $-4 \cdot 6\sqrt{5}$   
 $-36\sqrt{5}$
17.  $3\sqrt{175}$   
 $3\sqrt{25 \cdot 7}$  or  $3 \cdot 5\sqrt{7}$   
 $15\sqrt{7}$
18.  $-2\sqrt{252}$   
 $-2\sqrt{36 \cdot 7}$  or  $-2 \cdot 6\sqrt{7}$   
 $-12\sqrt{7}$
19.  $\sqrt{192}$   
 $\sqrt{64 \cdot 3}$  or  $2 \cdot 2 \cdot 2\sqrt{3}$   
 $8\sqrt{3}$
20.  $\sqrt{245}$   
 $\sqrt{49 \cdot 5}$  or  $7\sqrt{5}$